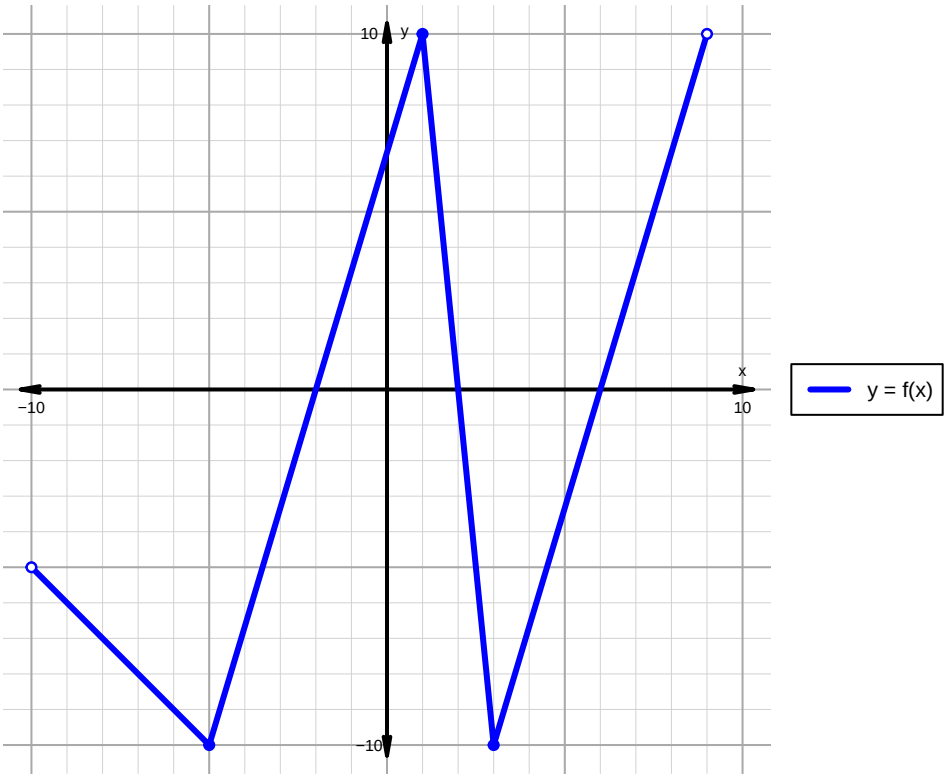
Name: Date:

## Intervals, Transformations, and Slope Solution (version 134)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-2, 2) \cup (6, 9)$ |
| Negative | $(-10, -2) \cup (2, 6)$ |
| Increasing | $(-5, 1) \cup (3, 9)$ |
| Decreasing | $(-10, -5) \cup (1, 3)$ |
| Domain | $(-10, 9)$ |
| Range | $(-10, 10)$ |

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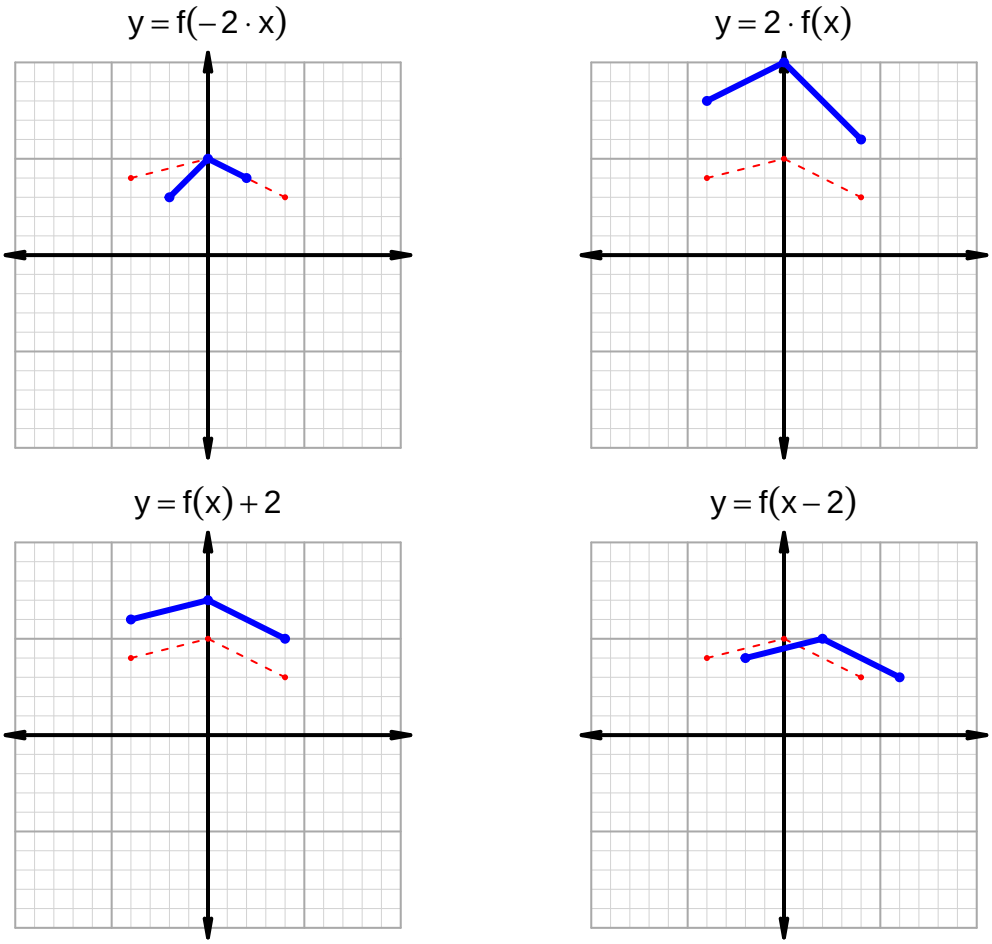
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 37$ and $x_2 = 79$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 37 | 81 |
| 46 | 37 |
| 79 | 46 |
| 81 | 79 |

$\frac{f(79)-f(37)}{79-37} = \frac{46-81}{79-37} = \frac{-35}{42}$

The greatest common factor of -35 and 42 is 7. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-5}{6}$$